

NEW SPECIES OF *ASTRAGALUS* (LEGUMINOSAE)
FROM SOUTHEASTERN UTAH

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ABSTRACT.— Named and described is *Astragalus piscator* Barneby & Welsh, a species of sect. *Argophylli* subsect. *Missourienses*. The species occurs in Grand and San Juan counties, Utah.

For several years the authors have been aware of an undescribed species of *Astragalus* masquerading within the specimens designated as *A. amphioxys* and *A. cymboides* from Grand and San Juan counties in southeastern Utah. The plants begin flowering in late March and are in fruit by mid-May. Few collections represent flowering material, possibly due to the earliness of anthesis. Relationship of flowering to fruiting materials has only recently become apparent. The species is described as follows:

Astragalus (sect. *Argophylli* subsect. *Missourienses*) *piscator* Barneby & Welsh, sp. nov., inter arcte affines *A. musiniense* M. E. Jones, *A. chamaeleuce* A. Gray, *A. amphioxys* A. Gray necnon *A. cymboides* M. E. Jones ambigens, tam a prima, facie foliolisque ellipticis acutis simili, quam a secunda, foliolis obovatis obtusis distantiori, leguminis valvulis maturis chartaceis nec spongiosi-alveolatis diversa, a tertia imprimis leguminis longitrorsum bicarinati sutura dorsali tota longitudine acuta, nec depressa, et ab *A. cymboides* legumine simpliciter per rostrum hiantem dehiscenti valvularum epicarpio haud ab endocarpio exfolianti diagnosenda.—UTAH. San Juan Co.: Salt Canyon, above jump, T31S, R20E, S31/32, +/- 1700 m, 2 June 1964 (fr), S. L. Welsh (with G. Moore and S. G. Canter) 2979.—Holotype, BRY; isotype, NY.

Acaulescent or subacaulescent herbs from vertical taproot, perennial of short duration flowering the first year, the leaves and scapiform peduncles arising from root-crown at soil level, this more or less clothed with a persistent thatch of leaf bases, strigose throughout with appressed dolabriform hairs, the leaflets yellow-green above, gray beneath; stipules ovate-acuminate 3–9 mm, usually closely imbricated, strigose dorsally, persistent; leaves (3)4–10(16) cm; leaflets of most leaves 5–11(13), elliptic or lance-elliptic, acute or

subobtus (5)7–17(32) × 2–4(6) mm, those of some eophylls only 1–3 and rhombic ovate; peduncles (1)2–6(9) cm, ascending at anthesis, procumbent in fruit, the pods humistrate; racemes shortly loosely 3–10-flowered, the axis becoming 4–15(20) mm in fruit; calyx 11–14.5 mm, either black- or partly white-strigose, the cylindric tube 8.5–11 × 3–4 mm, the linear-subulate teeth 2–3.5(4) mm; corolla of *A. amphioxys*, the banner 18–24 mm, the obtuse keel 16–18 mm; ovary strigulose, the ovules +/- 40; pod ascending, sessile, deciduous from receptacle, in profile lance-elliptic, shallowly lunate-incurved, obtuse at base, acuminate distally, 24–40 × 8–15 mm, somewhat laterally compressed but the valves dilated near middle into an obtuse longitudinal ridge, both sutures becoming sharply prominent at maturity, the moderately fleshy, densely strigose, purplish mottled valves becoming stiffly chartaceous or subcoriaceous (but not pithy) and +/- 0.5 mm thick when dry, dehiscent after falling through the gaping beak.

In sandy soils of valley benches and in gullied foothills, on Moenkopi, Cutler, and White Rim formations, 1550–1750 m, known only from the lower Grand River Valley in SE Grand and N San Juan counties, Utah.—Fl. late March to early June.

ADDITIONAL SPECIMENS EXAMINED: UTAH. Grand Co.: foothills east of Moab, 28 March 1967, J. Pederson 15 (BRY); Castle Valley, T25S, R23E, 5 June 1970, S. L. Welsh & N. D. Atwood 9952 (BRY, NY), 9953 (BRY); along Fisher Valley road up Onion Creek, 8.4 mi E of Utah Hwy 128, below summit of road at Fisher Valley, 1 July 1975, J. L. Reveal

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3850 (BRY; NY); *ibid.*, 20 May 1982, R. Barneby 17808 (BRY, NY, US); about half a mile E of Castle Rock, T25S, R23E, S9, 28 April 1984, S. L. Welsh & D. Trotter 22716 (BRY, NY, ISC, RM, CAS, RSA, UT, UTC, COLO). San Juan Co.: Chesler Park, T31S, R19E, S5, 1 June 1964, S. L. Welsh, G. Moore, & S. G. Canter 2899 (BRY); Canyonlands National Park, Virginia Park, northeast of entrance, in grassy flat, 14 May 1965, G. Moore 316 (BRY).

Astragalus piscator is a critical species closely related to *A. musiniensis* M. E. Jones, *A. cymbooides* M. E. Jones, *A. chamaeleuce* A. Gray, and *A. amphioxys* A. Gray but is distinguished by a regrouping of foliage and pod characters not previously encountered. In habit and mostly elliptic acute leaflets it resembles *A. musiniensis*, but the lateral compression of the ripe pod is reminiscent rather of *A. cymbooides*. The pod valves are, however, only moderately fleshy, as in *A. amphioxys*, and do not become alveolate-pithy as in *A. musiniensis* and *A. cymbooides*. The fully ripe pod of the last mentioned is remarkable for the exfoliating epicarp of the valves, a character unique to this one species. Although the pod of *A. piscator* resembles that of *A. amphioxys* in texture and curvature, it differs in the permanently prominent dorsal suture and consequently elliptic transverse section. On Onion Creek *A. piscator* and *A. amphioxys* were encountered in close proximity and were there instantly perceived as different in foliage and flower color, the petals of the new species being pale lilac, not vivid pink-purple.

Because of the distinctive fruit, this species

was regarded as belonging to *A. missouriensis* by Welsh following initial collections taken in June 1964. However, it was the robust material taken by Welsh and Atwood from Castle Valley in 1970, and by Reveal from Onion Creek in 1975, that called our attention to *A. piscator*. Among the specimens taken in 1970 and 1975 are relatively gigantic plants, with leaves up to 17 cm long and pods up to 14 mm in diameter. Specimens bearing flowers and young pods, collected from what is believed to be the same part of the Onion Creek population in the unfavorable spring of 1982, show a gradation in stature down to a diminutive plant only 4 cm diameter. A longer set of flowering plants from nearby Castle Rock obtained in 1984 is essentially similar to the last. Although this material was being analyzed for the Intermountain Flora, a collection, cited above as type of *A. piscator*, was retrieved from the herbarium at NY, where it had lain for twenty years misidentified as a variant of *A. chamaeleuce* (the specimen exchanged as *A. missouriensis* by Welsh). Subsequent review of specimens identified at BRY as *A. amphioxys*, *A. cymbooides*, and *A. missouriensis* yielded the other specimens cited above. The *Argophylli* are notoriously sensitive and adaptable to annual fluctuation of rainfall, and we believe the extremes of variation allowed for in our description of *A. piscator* are acceptable within any species of this group.

The epithet "piscator" refers to Fisher Towers, a notable geological feature of the Grand Valley near the main body of the species. The species will be illustrated in a forthcoming volume of the Intermountain Flora.